



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,034	07/16/2003	Wipul Jayasekara	SJO920000096US5	2253

7590 06/22/2005

Ron Feece
INTERNATIONAL BUSINESS MACHINES CORPORATION
Dept. L2PA
5600 Cottle Road
San Jose, CA 95193

EXAMINER

RENNER, CRAIG A

ART UNIT	PAPER NUMBER
----------	--------------

2652

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,034

Applicant(s)

JAYASEKARA, WIPUL

Examiner

Craig A. Renner

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,10,11 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) 1,10,11 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 1, 10, 11 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08 October 2004.

Drawings

2. The drawings were received on 16 July 2003. These drawings are accepted.

Specification

3. The disclosure is objected to because of the following informalities:

On page 2 of the amendment filed 01 March 2005, line 12 of the first replaced paragraph, "free laye (FL)r" should be changed to --free layer (FL)--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2652

Claims 21-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In lines 18-20 of claim 21 and lines 22-24 of claim 23, each instance of “the longitudinal bias layer consisting of a layer of electrically insulating hard magnetic material extending from the first shield to the second shield” is indefinite because it is misdescriptive of the disclosure, which teaches/shows that the longitudinal bias layer consists of a layer **246** of electrically insulating hard magnetic material **HM** extending from a first lead **236** to a second shield **244**.

b. In line 20 of claim 21 and line 23 of claim 23, each instance of “the first shield” is indefinite because it lacks clear and/or positive antecedent basis.

c. In line 20 of claim 21 and line 24 of claim 23, each instance of “the second shield” is indefinite because it lacks clear and/or positive antecedent basis

d. In lines 1-2 of claim 22, “wherein the nonconductive longitudinal bias layer comprises nickel-oxide” is indefinite because the longitudinal bias layer has already been defined to be a “hard magnetic material” in lines 18-19 of independent claim 21. Nickel-oxide, however, is an antiferromagnetic material and not a hard magnetic material.

e. Claim 24 inherits the indefiniteness associated with independent claim 21 and stands rejected as well.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 21 and 23 are rejected under 35 U.S.C. 102(x) as being anticipated by Miyauchi et al. (US 2001/0021089).

Miyauchi teaches in a magnetic read head (2) having an air bearing surface (shown facing out of page in FIG. 4, for instance), a magnetic tunnel junction sensor (3) for connection to sense circuitry for detecting changes in electrical resistance within the sensor, the sensor comprising first and second electrically conductive leads (6a/7a and 6b/7b, lines 7-9 in paragraph [0079], for instance); a magnetic tunnel junction stack (10-14) sandwiched between the first and second electrically conductive leads (as shown in FIG. 4, for instance) with an active region disposed at the air bearing surface and having two opposite sides each disposed generally orthogonally to the air bearing surface (as shown in FIG. 4, for instance), each disposed generally orthogonally to the ABS, the first and second electrically conductive leads extending laterally beyond the active region (as shown in FIG. 4, for instance), the magnetic tunnel junction stack comprising an antiferromagnetic layer (10, lines 3-4 in paragraph [0058], for instance)

Art Unit: 2652

spanning the active region, a pinned layer of ferromagnetic material (11) in contact with the antiferromagnetic layer, a free layer of ferromagnetic material (13) spanning the active region, and a tunnel junction layer of electrically nonconductive material (12) disposed between the pinned layer and the free layer in the active region; and a nonconductive longitudinal bias layer (4) formed outside of the active region and in abutting contact with the two opposite sides of the active region (as shown in FIG. 4, for instance) for biasing the magnetic moment of the free layer in substantially a predetermined direction in the absence of an external magnetic field, the longitudinal bias layer consisting of a layer of electrically insulating hard magnetic material (paragraphs [0073] and [0074], for instance, i.e., at least one of "Co-Fe-MgF₂", "Fe₂O₃", and "Co- γ Fe₂O₃" is an electrically insulating hard magnetic material) extending from the first lead to the second lead (as shown in FIG. 4, for instance) [as per claim 21]; wherein the magnetic read head is a component of a direct access storage device (paragraph [004], for instance) [as per claim 23].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2652

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyauchi et al. (US 2001/0021089) in view of Aoshima et al. (US 6,556,391).

Miyauchi teaches the magnetic read head as detailed in paragraph 6, *supra*. Miyauchi, however, remains silent as to the nonconductive longitudinal bias layer comprising "barium ferrite."

Aoshima teaches that barium ferrite is a notoriously old and well known nonconductive longitudinal bias layer material in the art (lines 64-67 in column 4, for instance). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the nonconductive longitudinal bias layer of Miyauchi comprise barium ferrite as taught by Aoshima. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the nonconductive longitudinal bias layer of Miyauchi comprise barium ferrite as taught by Aoshima since such is a notoriously old and well known nonconductive longitudinal bias layer material in the art as shown by Aoshima, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 2652

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claim 22 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 9 (renumbered as claim 1) of copending Application No. 10/621,483. Although the conflicting claims are not identical, they are not patentably distinct from each other because the only distinction is that the present claim specifically sets forth the antiferromagnetic material "nickel-oxide." Official notice is taken of the fact that nickel-oxide is a notoriously old and well known antiferromagnetic material in the art. It would have been obvious to have claimed nickel-oxide in copending Application No. 10/621,483 since such is a notoriously old and well known antiferromagnetic material in the art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art. See *In re Leshin*, supra.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

11. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Craig A. Renner
Primary Examiner
Art Unit 2652

CAR